

CLAIMS

1. A sensing element for use in a biosensor, comprising a matrix of discrete particles formed from a material capable of supporting surface electromagnetic waves, the particles having a biologically active molecule bound thereto.
- 5 2. A sensing element according to claim 1, wherein the particles are metallic.
3. A sensing element according to claim 1 or claim 2, wherein the particles are gold.
4. A sensing element according to any preceding claim, wherein the particles are of sub-micron diameter.
- 10 5. A sensing element according to claim 4, wherein the diameter is from 5 nm to 50 nm.
6. A sensing element according to any preceding claim, wherein the particle matrix forms a surface on a dielectric substrate.
7. A sensing element according to claim 6, wherein the dielectric substrate
- 15 is glass.
8. A sensing element according to any preceding claim, wherein the particles are linked via a polymer molecule.
9. A sensing element according to any preceding claim, wherein the biologically active molecule is a protein.
- 20 10. A sensing element according to claim 9, wherein the protein is polymerase enzyme.
11. Apparatus for detecting a physical, chemical or biochemical reaction, comprising
 - a coherent radiation source for producing an incident wave;
 - 25 a sensing element for supporting a molecule to be analysed, the element being as defined in any preceding claim;
 - a detector for monitoring changes in radiation reflected from the sensing element.
12. Use of a sensing element or an apparatus as defined in any preceding
- 30 claim, in an assay to detect changes in the molecule bound to the sensing element.

13. A method for monitoring a molecule undergoing a physical, chemical or biochemical reaction occurring on a sensing element, comprising the steps of:
- applying electromagnetic radiation to a sensing element having one molecule bound thereto; and
- 5 monitoring changes in radiation reflected from the sensing element, wherein the sensing element is as defined in any of claims 1 to 10.